

an iceberg; s. s. "Elysia," in N. 42° 40', W. 52° 40', passed an iceberg.

4th.—S. S. "Lord Olive," from N. 43° 16', W. 48° 50' to N. 43° 12', W. 48° 39', passed five icebergs; s. s. "Elysia," in N. 42° 30', W. 50° 34', passed an iceberg.

5th.—S. S. "Finchley," in N. 42° 15', W. 49° 47', passed several icebergs; s. s. "Amsterdam," in N. 42° 24', W. 50° 04', passed a large iceberg; s. s. "Azalea," in N. 48° 18', W. 44° 51', passed a large iceberg; also, in N. 48° 30', W. 43° 00', passed another.

6th.—S. S. "Elbe," in N. 42° 10', W. 49° 46', passed a small iceberg.

7th.—S. S. "Azalea," in N. 43° 30', W. 52° 20', passed an iceberg.

7th.—Saint John's, Newfoundland: thirty sealing schooners are reported fast in heavy field-ice in the northern part of Gulf of Saint Lawrence.

12th.—S. S. "Devon," at New York, reported: passed two large icebergs in N. 48° 14', W. 42° 23'; s. s. "Habsburg," in N. 41° 23', W. 48° 55', passed an iceberg; also, in N. 41° 29', W. 49° 36', passed another about one hundred and fifty feet high; s. s. "Fulda," in N. 42° 45', W. 48° 39', passed two large icebergs.

13th.—S. S. "Château Lafite," in N. 40° 28', W. 51° 45', passed an iceberg about eighty feet high; s. s. "Jason," in N. 42° 17', W. 55° 09', passed an iceberg; ship "Colchester," in N. 42° 30', W. 52° 40', passed two icebergs.

14th.—S. S. "Grecian Monarch," in N. 47° 42', W. 42° 40', passed a small iceberg. Captain Dale, of the s. s. "Dominion," reports: "At 8.40 p. m. of the 14th (between N. 53°, W. 49°, and N. 51° W. 51°), ran into a quantity of field-ice; at midnight stopped engines, awaiting clear weather and daylight. At 3 a. m. of the 15th, weather clearing, found large quantities of field-ice about, so determined not to try a passage through the Straits of Belle Isle; shaped a course for Cape Race, and passed numerous icebergs up to 8 p. m."

15th.—Ship "Terpsichore," in N. 43° 50', W. 47° 50', passed three icebergs each about eighty feet high; s. s. "Wisconsin," in N. 44° 17', W. 46° 26', passed an iceberg; s. s. "Plantyn," in N. 45° 01', W. 47° 16', passed an iceberg about one hundred and ten feet high.

16th.—S. S. "Faraday," at New York, reported: passed several large icebergs between N. 43° 43', W. 47° 09' and N. 42° 03', W. 52° 32'; s. s. "Ethiopia," in N. 43° 00', W. 47° 31', passed three icebergs; s. s. "Wyoming," in N. 43° 37', W. 46° 07', passed a large iceberg; also, in N. 43° 52', W. 45° 40', passed another.

17th.—S. S. "Joseph Ferens," in N. 47° 55', W. 43° 10', passed a large iceberg; s. s. "Elbe," in N. 43° 45', W. 46° 11', passed six miles north of a very large iceberg.

18th.—S. S. "City of Richmond," in 43° 30', W. 44° 56', passed an iceberg about one hundred feet high; s. s. "Rugia," in N. 43° 39', W. 45° 10', passed a large iceberg; s. s. "Joseph Ferens," in N. 46° 36', W. 47° 45', passed an iceberg.

NOTE.—The absence of reports between the 18th and 29th seems to indicate that the ice disappeared rapidly during the latter part of the month.

29th.—S. S. "Lord Gough," in N. 48° 32', W. 46° 06', passed an iceberg; also, in N. 48° 06', W. 48° 02', passed another.

## TEMPERATURE OF THE AIR.

[Expressed in degrees, Fahrenheit.]

The distribution of mean temperature over the United States and Canada, for the month of June, 1883, is exhibited on chart iii., by the dotted isothermal lines.

In the first column of the following table is shown the normal temperature of June in the several districts, as determined from the Signal-Service records; the second column shows the mean temperature of June, 1883, and the third column shows the departure of June, 1883, from the normal.

## Average Temperatures for June, 1883.

Districts.	Average for June. Signal Service observations.		Comparison of June, 1883, with the average for several years.
	For several years.	For 1883.	
New England.....	64.4	66.7	2.3 above.
Middle Atlantic states.....	70.5	71.7	1.2 above.
South Atlantic states.....	77.8	78.2	0.4 above.
Florida peninsula.....	81.7	82.3	0.6 above.
Eastern Gulf.....	79.4	79.0	0.4 below.
Western Gulf.....	80.5	80.4	0.1 below.
Tennessee.....	76.3	76.0	0.3 below.
Ohio valley.....	73.4	72.5	0.9 below.
Lower lakes.....	65.3	64.7	0.6 below.
Upper lakes.....	61.9	60.8	1.1 below.
Extreme northwest.....	61.6	62.4	0.8 above.
Upper Mississippi valley.....	71.6	69.3	2.3 below.
Missouri valley.....	72.0	68.3	3.7 below.
Northern slope.....	63.0	61.9	1.1 below.
Middle slope.....	72.3	69.0	3.3 below.
Southern slope.....	78.4	78.6	0.2 above.
Southern plateau.....	78.0	78.9	0.9 above.
North Pacific.....	62.0	63.0	1.0 above.
Middle Pacific.....	68.7	70.9	2.2 above.
South Pacific.....	72.4	74.2	1.8 above.
Mount Washington, N. H.....	43.4	46.6	3.2 above.
Pike's Peak, Colo.....	33.3	31.3	2.0 below.
Salt Lake City, Utah.....	68.7	70.5	1.8 above.

The general distribution of mean temperature for June, and the districts of maximum departures from the normal in each year, beginning with 1873, are as follows:

Districts.	Maximum departures.	Year.	Remarks.
Northeastern Virginia.....	+ 4.5	1873	Below the normal in the Lake Superior region and at stations in the south Atlantic states, New Jersey, and in eastern Pennsylvania; elsewhere it is above normal.
Northern New York.....	+ 1.7		
Lake Superior region.....	+ 0.5		
Ohio valley.....	+ 5.9	1874	Above the normal in all districts east of the Rocky mountains, except 0.1 below in New England; below the normal on the Pacific coast.
Missouri valley.....	+ 4.0		
Middle Atlantic states.....	+ 3.1		
Pacific states.....	+ 2.0	1875	Normal in the middle Atlantic states; slightly above the normal in the Gulf states and lower lake region; small departures below the normal occur in other districts.
Upper Mississippi valley.....	+ 3.6		
Upper lakes.....	+ 2.4		
Lower lakes.....	+ 0.6	1876	Normal in the Gulf states; above the normal in the lower lake region, Saint Lawrence valley, and on the Atlantic and Pacific coasts; below the normal over the interior districts.
Gulf states.....	+ 0.6		
Middle Atlantic states.....	+ 3.0		
New England.....	+ 2.8	1877	Slightly above the normal in the Atlantic and Gulf states; below the normal over the interior districts.
Missouri valley.....	+ 3.1		
Upper Mississippi valley.....	+ 2.9		
Upper Missouri valley.....	+ 4.5	1878	Slightly above the normal on the Pacific coast, in the Gulf states, upper Missouri valley, and Minnesota; below the normal in all other districts.
Minnesota.....	+ 3.1		
Upper Mississippi valley.....	+ 2.4		
New England.....	+ 1.1	1879	Normal in the south Atlantic states; above the normal between the Mississippi river and Rocky mountains; below the normal in other districts.
Ohio valley.....	+ 4.3		
Middle Atlantic states.....	+ 4.0		
Upper Missouri valley.....	+ 1.4	1880	Normal in the Missouri valley; below the normal west of the Rocky mountains, in the middle Atlantic and Gulf states; above the normal in other districts.
Minnesota.....	+ 0.8		
Saint Lawrence valley.....	+ 3.7		
New England.....	+ 3.3	1881	Below the normal on the Pacific coast, in the lake region, upper Mississippi valley, New England, and middle Atlantic states; above the normal in the Ohio and Missouri valleys, the Southern states, and in the Rocky mountain districts.
Southern slope.....	+ 2.4		
Northern plateau.....	+ 3.8		
North Pacific.....	+ 2.9	1882	Normal in the south Atlantic and Gulf states; slightly above the normal in New England, middle Atlantic states, Missouri valley, and northern plateau; below the normal in all other districts.
Upper lakes.....	+ 2.8		
Lower lakes.....	+ 2.0		
Lower lakes.....	+ 4.4	1883	
New England.....	+ 4.3		
Upper lakes.....	+ 4.1		
Middle slope.....	+ 5.1	1884	
West Gulf states.....	+ 4.2		
Upper Mississippi valley.....	+ 2.1		
Upper lakes.....	+ 2.0	1885	
Southern plateau.....	+ 3.8		
Middle Pacific coast.....	+ 2.2		

The mean temperature of June, 1883, shows no marked deviations from the normal. On the Pacific coast, in New England, and the middle Atlantic states, it is from 1° 4 to 2° 3 above the normal. In the south Atlantic states, Florida, and the southern plateau, the departures above the normal temperature are less than 1°, and a normal condition is reported from the west Gulf states. In all other districts the mean temperature is below the normal. The districts of greatest deficiencies are the upper Mississippi and Missouri valleys, and middle slope, where they are 2° 3, 3° 7 and 3° 3 respectively. In the northern slope and upper lake region, the deficiencies average about 1°,

and in other districts where the temperature is below the normal the deficiencies are less than 1°. On the summit of Mount Washington, New Hampshire, the mean temperature is 3°.2 above the average of June, for the eleven preceding years; and on the summit of Pike's Peak, Colorado, it is 2° below the June average of nine preceding years.

The following are some of the extreme monthly mean temperatures reported from Signal-Service stations:

Stations reporting highest.		Stations reporting lowest.	
Yuma, Arizona.....	87.3	Pike's Peak, Colorado.....	0
Phoenix, Arizona.....	85.4	Mount Washington, New Hampshire.....	31.3
Key West, Florida.....	83.8	Cape Mendocino, California.....	54.5
Rio Grande City, Texas.....	83.7	Marquette, Michigan.....	57.3
Brownsville, Texas.....	83.6	Eastport, Maine.....	57.5
Galveston, Texas.....	82.9	Cheyenne, Wyoming.....	57.5
El Paso, Texas.....	82.7	Alpena, Michigan.....	58.7
Indianola, Texas.....	82.1	Mackinaw City, Michigan.....	59.4
Cedar Keys, Florida.....	82.1	Duluth, Minnesota.....	59.4
Camp Thomas, Arizona.....	81.7	Esanaba, Michigan.....	59.4

Table of Comparative Maximum Temperatures for the Month of June.

State or Territory.	Maximum for June, 1883, Signal Service.		Maximum since Signal-Service stations were opened—3 to 12 years.			Highest from any other source.			
	Station.	Temp.	Station.	Temp.	Year.	Place.	Temp.	Year.	Length of Record.
Alabama.....	Mobile.....	99	Montgomery.....	106	1881	Mount Vernon Barracks.....	102	1876	35 years.
Arizona.....	Phoenix.....	119	Maricopa Wells.....	116	1875	Fort Mojave.....	119	1876	13 "
Do.....	Yuma.....	117	Yuma.....	114	'76, '77	Fort Lowell.....	116	1876	12 "
Arkansas.....	Fort Smith.....	100	Fort Smith.....	101	1882	Fort Smith.....	99		21 "
California.....	Red Bluff.....	104	Visalia.....	109	1879	Fort Miller.....	121	1853	13 "
Do.....	Sacramento.....	102	Red Bluff.....	105	1875	Fort Yuma.....	117	1859	31 "
Colorado.....	West Las Animas.....	98	Denver.....	99	1873	Fort Lyon.....	107		22 "
Connecticut.....	New Haven.....	87	New Haven.....	92	1880	New Haven.....	102	1864	87 "
Dakota.....	Fort Buford.....	107	Fort Sully.....	111	'74, '76	Fort Sully.....	108		16 "
Do.....	Bismarck.....	99	Fort Meade.....	103	1881	Fort Buford.....	106	'68, '70	15 "
Delaware.....	Delaware Breakwater.....	85	Delaware Breakwater.....	89	1880	Fort Delaware.....	97		45 "
District of Columbia.....	Washington.....	92	Washington.....	102.5	1874	Washington.....	99		49 "
Florida.....	Sanford.....	98	Jacksonville.....	100	1880	Fort King.....	106	1833	10 "
Do.....	Jacksonville.....	95	Saint Marks.....	98	'76, '77	Fort Barrancas.....	104	1854	57 "
Georgia.....	Savannah.....	97	Augusta.....	102	1881	Fortyeth.....	104	1881	7 "
Do.....	Augusta.....	95	Savannah.....	100	1880	Oglethorpe Barracks.....	102	1845	40 "
Idaho.....	Lewiston.....	98	Boise City.....	96	1878	Fort Boise.....	107	1870	15 "
Do.....	Coeur d'Alene.....	94	Fort Lapwai.....	97	1881	Fort Lapwai.....	105		16 "
Illinois.....	Cairo.....	91	Chicago.....	98	1872	Chicago.....	102		38 "
Do.....	Springfield.....	90	Cairo.....	95	'74, '81	Rock Island Arsenal.....	102	'70, '73	12 "
Indiana.....	Indianapolis.....	89	Indianapolis.....	99	1874	Vevay.....	100	'65, '66	14 "
Indian Territory.....	Fort Supply.....	100	Fort Sill.....	105	1881	Fort Gibson.....	103		48 "
Do.....	Fort Reno.....	94	Fort Gibson.....	100	1881	Fort Sill.....	103		9 "
Iowa.....	Dubuque.....	94	Dubuque.....	98	1874	Guttenburg.....	103	1870	12 "
Kansas.....	Leavenworth.....	92	Dodge City.....	102	1880	Fort Wallace.....	108	1879	7 "
Do.....	Dodge City.....	97	Leavenworth.....	99	1875	Fort Hays.....	106		10 "
Kentucky.....	Louisville.....	93	Louisville.....	100	1874	Newport Barracks.....	96		28 "
Louisiana.....	Shreveport.....	99	Shreveport.....	104	1875	Point Pleasant.....	101	1881	6 "
Do.....	New Orleans.....	92	New Orleans.....	97	1881	Baton Rouge.....	98		57 "
Maine.....	Portland.....	86	Portland.....	94	1873	Brunswick.....	98		53 "
Do.....	Eastport.....	79	Eastport.....	81	1878	Hancock Barracks.....	98	1837	17 "
Maryland.....	Baltimore.....	90	Baltimore.....	97.5	1874	Fort Washington.....	105	1853	38 "
Massachusetts.....	Boston.....	91	Boston.....	98	1874	Fort Independence.....	99	54, '72	47 "
Michigan.....	Marquette.....	87	Alpena.....	97	1874	Marquette.....	101	1862	8 "
Do.....	Detroit.....	87	Marquette.....	94	'78, '80	Monroe.....	101	1868	10 "
Minnesota.....	Saint Vincent.....	93	Breckenridge.....	96	1876	Saint Paul.....	99	1870	7 "
Mississippi.....	Vicksburg.....	95	Vicksburg.....	101	1881	Brookhaven.....	100	1875	5 "
Do.....						Fayette.....	99	1881	7 "
Missouri.....	Saint Louis.....	91	Saint Louis.....	99	1881	Allenton.....	101		4 "
Do.....						Saint Louis.....	100		39 "
Montana.....	Terry's Landing.....	110	Fort Keogh.....	104	1881	Fort Benton.....	104		10 "
Nebraska.....	Omaha.....	95	North Platte.....	101	1876	Fort McPherson.....	108	1876	13 "
Do.....	North Platte.....	93	Omaha.....	98	1881	Fort Lincoln.....	108	1881	1 "
Nevada.....	Winnemucca.....	88	Winnemucca.....	95	1881	Camp Halleck.....	111	1871	15 "
New Hampshire.....	Mount Washington.....	65	Mount Washington.....	71	1873	Dunbarton.....	100	1876	5 "
Do.....						Fort Constitution.....	99	'50, '52	34 "
New Jersey.....	Sandy Hook.....	90	Sandy Hook.....	97	1874	Atco.....	102	1875	8 "
Do.....	Little Egg Harbor.....	89	Squad Beach.....	95	1875	Rio Grande.....	102	1875	1 "
New Mexico.....	Santa Fe.....	86	La Mesilla.....	108	1881	Fort McKee.....	120	1873	11 "
New York.....	Albany.....	88	Oswego.....	98	1875	Fort Hamilton.....	106	1825	39 "
North Carolina.....	Charlotte.....	94	Wilmington.....	100	1880	Weldon.....	103	1880	7 "
Do.....	Wilmington.....	93	Kittyhawk.....	99	1880	Fort Johnson.....	99		57 "
Ohio.....	Cincinnati.....	90	Cincinnati.....	98.5	1874	College Hill.....	100	1881	64 "
Do.....	Columbus.....	89	Cleveland.....	96	1874	Ruggles.....	100	1879	7 "
Oregon.....	Portland.....	87	Unatilla.....	103	'78, '80	Fort Dalles.....	104		15 "
Pennsylvania.....	Pittsburg.....	90	Pittsburg.....	98	1874	Carlisle Barracks.....	100	1868	37 "
Do.....	Philadelphia.....	90	Philadelphia.....	97	1874	Mount Joy.....	100		10 "
Rhode Island.....	Narragansett Pier.....	84	Newport.....	89	1876	Providence.....	97	1862	35 "
South Carolina.....	Charleston.....	99	Charleston.....	100	'77, '80	Aiken.....	102	1881	4 "
Do.....						Charleston.....	96		105 "
Tennessee.....	Memphis.....	95	Memphis.....	100	1881	Humboldt.....	104	'71, '74	4 "
Texas.....	El Paso.....	113	Fort Davis.....	111	1881	Fort Ringgold.....	114	1877	32 "
Do.....	Uvalde.....	104	El Paso.....	109	1881	Fort Duncan.....	112	1860	31 "
Utah.....	Salt Lake City.....	100	Salt Lake City.....	99	1881	Mount Carmel.....	107	1875	3 "
Do.....						Fort Crittenden.....	103	1859	3 "
Vermont.....	Burlington.....	85	Burlington.....	94	1878	Lunenburg.....	98		10 "
Virginia.....	Norfolk.....	95	Norfolk.....	102	1874	Accotink.....	98	1881	7 "
Do.....	Lynchburg.....	92	Cape Henry.....	98	1874	Fortress Monroe.....	97		56 "
Washington.....	Spokane Falls.....	55	Dayton.....	97	1880	Fort Walla Walla.....	106	1876	12 "
West Virginia.....			Morgantown.....	93	1874	Weston.....	94	1875	2 "
Wisconsin.....	La Crosse.....	87	La Crosse.....	98	1874	Fort Howard.....	100		30 "
Do.....	Milwaukee.....	80	Milwaukee.....	94	1874	Milwaukee.....	100	1870	11 "
Wyoming.....	Cheyenne.....	91	Cheyenne.....	97	'80, '81	Fort Fred Steele.....	104	1871	15 "

# DEVIATIONS FROM MEAN TEMPERATURE.

The departures exhibited by the reports from the regular Signal-Service stations are shown in the table of average temperatures for June, 1883. Voluntary observers report the following notes in connection with this subject:

*California.*—Poway, San Diego county: mean temperature, 69°.3, is 4°.2 above the June average of five years.

*Illinois.*—Anna, Union county: mean temperature, 74°.2, is 0°.7 above the June average of eight years.

Riley, McHenry county: mean temperature, 65°.1, is 1°.5 below the June average of the last twenty-two years.

*Indiana.*—Wabash, Wabash county: mean temperature, 68°.9, is 0°.2 above the June average of the last seven years. The mean temperature for the six months ending June 30, 1883, is 44°.17 or 1°.33 below the average of the corresponding months of the last seven years.

Logansport, Cass county: mean temperature, 71°.1, is 4° below the June average of twenty-four years. The June ex-

Table of Maximum and Minimum Temperatures for June, 1883.

State or Territory.	Signal Service.		U. S. Army Post Surgeons, or Voluntary Observers.		
	Station.	Max.	Min.	Station.	Max. Min.
Alabama	Mobile	99	70	State Line	104 60
Do	Montgomery	97	63	Tuscaloosa	97 50
Arizona	Phoenix	119	55	Texas Hill	118 70
Do	Fort Apache	101	55	Brinkley	99 46
Arkansas	Fort Smith	100	53	Lead Hill	99 51
Do	Little Rock	97	57	White Water	113 66
California	Red Bluff	104	54	Ione	109 40
Do	Cape Mendocino	83	43	Fort Lyon	100 28
Colorado	West Las Animas	98	30	Fort Lewis	88 28
Do	Pike's Peak	52	13	Southington	94 33
Connecticut	New Haven	87	45	Fort Yates	108 33
Dakota	Fort Buford	107	30	Fort Pembina	91 29
Do	Bismarck	98	53	West Washington	93 49
Delaware	Del. Breakwater	85	56	Live Oak	99 61
District of Columbia	Washington	92	51	Limona	96 61
Florida	Sanford	98	71	Gainesville	96 48
Do	Jacksonville	95	68	Way Cross	104 60
Georgia	Savannah	97	65	Peoria	95 50
Do	Atlanta	91	51	Aurora	94 40
Idaho	Lewiston	99	44	Martinsville	91 54
Do	Eagle Rock	78	34	Glenwood	85 40
Illinois	Chicago	91	57	Mount Vernon	96 51
Indiana	Indianapolis	89	50	Logan	93 58
Do	Fort Supply	100	45	Clay Centre	108 58
Iowa	Dubuque	94	50	Banhattan	96 40
Do	Lavenport	92	49	Bowling Green	91 51
Kansas	Lavenworth	92	47	Franklin	103 66
Do	Louisville	93	52	Morgan City	98 45
Kentucky	Shreveport	99	64	Gardiner	98 44
Louisiana	New Orleans	92	68	Orono	83 49
Do	Portland	85	51	Great Falls	90 55
Maine	Eastport	79	44	Woodstock	89 44
Maryland	Baltimore	90	55	Somerset	97 50
Do	Ocean City	89	55	Westborough	96 30
Massachusetts	Boston	91	51	Thornville	90 40
Do	Provincetown	87	50	San Arlor	85 37
Michigan	Marquette	87	40	Fort Snelling	99 42
Do	Alpena	86	34	Limn	104 57
Minnesota	St. Vincent	93	29	Okolona	102 50
Mississippi	Wicksburg	95	64	Pierce City	100 52
Do	Starkville	90	58	Bolivar	98 54
Missouri	Saint Louis	91	53	Fort Assiniboine	105 34
Do	Terry's Landing	110	32	Fort Ellis	99 32
Montana	Glendive	110	43	Fort Niobrara	106 40
Do	Deer Lodge	103	30	Millford	104 52
Nebraska	Omaha	95	45	Toano	105 50
Do	North Platte	88	46	Boa	90 35
Nevada	Winnemucca	86	39	New Market	88 44
Do	Pioche	86	37	Grafton	84 37
New Hampshire	Mount Washington	65	21	Wineford	99 50
Do				Newton	96 37
New Jersey	Sandy Hook	80	50	Fort Union	95 30
Do	Little Egg Harbor	80	51	Deming	97 65
New Mexico	Santa Fe	86	38	David Island	91 50
Do				Johnstown	84 37
New York	Albany	88	52	Chapel Hill	96 55
Do	Cheego	86	44	Salisbury	100 53
North Carolina	Charlotte	94	60	Limn	92 30
Do	New River Inlet	89	60	College Hill	86 53
Ohio	Cincinnati	90	57	Wauson	86 54
Do	Cleveland	86	44	Albany	86 54
Do				Eola	86 51
Oregon	Portland	87	44	Bloomington	91 44
Do	Bozaburg	87	42	Dyberry	86 34
Pennsylvania	Pittsburg	96	48	Cheraw	101 58
Do	Philadelphia	90	52	Kingstree	100 58
Rhode Island	Providence Pier	84	50	Bufoin	99 55
South Carolina	Charleston	99	65	Chickadee	92 47
Do				Harris	97 48
Tennessee	Memphis	95	57	Terrace	100 40
Do	Knoxville	90	54	Woodstock	91 39
Do	Chattanooga	93	56	Wytheville	96 43
Texas	El Paso	115	56	Acetlink	93 62
Do	Fort Elliott	99	48	Bainbridge Island	82 44
Utah	Salt Lake City	100	47	Helvetia	93 43
Vermont	Burlington	85	45	Neillsville	82 47
Do	Norfolk	95	58	Ripon	86 45
Virginia	Spokane Falls	92	55	Fort Bridger	91 26
Washington	Colfax	87	35		
Do					
West Virginia					
Wisconsin	La Crosse	87	50		
Do	Milwaukee	86	43		
Wyoming	Cheyenne	99	34		
Do	Fort Washakie	78	34		

extremes for that period are: maximum, 106° in 1872; minimum, 44° in 1869.

Vevay, Switzerland county: mean temperature, 73° 1 is about 2° below the June normal.

Kansas.—Lawrence, Douglas county: mean temperature, 71° 4, is 2° 9 below the June average of the last fifteen years. The extremes for June, 1883, are: maximum, 94°; minimum, 48° 5. The June extremes for the last fifteen years are: maximum, 102°, in 1870; minimum, 37, in 1869.

Yates Centre, Woodson county: mean temperature, 71° 3, is 3° 1 below the June average of the last three years.

Wellington, Sumner county: mean temperature, 71° 3, is 3° 7 below the June average of the last four years.

Maine.—Gardiner, Kennebec county: mean temperature, 64° 1, is 0° 7 below the June average of the last forty-seven years.

Maryland.—Fallston, Harford county: mean temperature, 70° 9, is 0 3 above the June average of the last twelve years.

Missouri.—See report of Professor Nipher, Director of the "Missouri Weather Service," under "Notes and Extracts."

New York.—North Volney, Oswego county: mean temperature, 65° 9, is 1° above the June average of the last fifteen years.

Palermo, Oswego county: mean temperature, 65° 2, is 0° 6 below the June average of the last thirty years. The extremes of June, 1883, are: maximum 82°; minimum 47°. The June extremes for the last thirty years are: maximum 95°, in 1864; minimum 39°, in 1859.

Ohio.—Wauseon, Fulton county: mean temperature, 66° 5, is 2° below the June average of the last thirteen years. During that period the highest June mean, 72° 4, occurred in 1873; the lowest, 65° 5, occurred in 1881. The June extremes of the same period are: maximum 99°, in 1874; minimum 34° 5, in 1883.

Pennsylvania.—Dyberry, Wayne county: mean temperature, 65° 0, is 0° 2 above the June average of the last seventeen years. During that period the highest June mean, 65° 4, occurred in 1870; the lowest, 60° 4, occurred in 1881. The extremes of June, 1883, are: maximum 86°; minimum 34°; and the June extremes for the last seventeen years are: maximum 96°, in 1870; minimum 28°, in 1875.

Texas.—New Ulm, Austin county: mean temperature, 80° 7, is about the June normal of the last eleven years.

Vermont.—Woodstock, Windsor county: mean temperature, 67° 4, is 3° 7 above the average of the last sixteen years. The highest June mean of that period, 69° 1, occurred in 1876; the lowest, 58° 8, occurred in 1869. The June extremes for the same period are: maximum 95° 3, in 1878; minimum 31° 4, in 1881.

Virginia.—Variety Mills, Nelson county: mean temperature, 71° 8, is 0° 6 above the average of the last six years.

West Virginia.—Helvetia, Randolph county: mean temperature, 68° 8, is 2° 9 above the June average of the last eleven years.

#### MONTHLY RANGES OF TEMPERATURE.

The monthly ranges of temperature have been greatest in Dakota and Montana, and smallest on the Gulf coast. The largest monthly ranges are as follows: Terry's Landing, Montana, 78°; Cartersville, Montana, 73°; Deer Lodge, Montana, 73°; Fort Yates, Dakota, 73°; Fort Assinaboine, Montana, 70°; Fort Lapwai, Idaho, 67°; Wickenburg, Arizona, 66°; Bismarck, Dakota, 66°; New Chicago, Montana, 65°; Phoenix, Arizona, 64°; Saint Vincent, Minnesota, 64°; Fort Apache, Arizona, 63°; Fort Benton, Montana, 61°; Fort Bennett, Dakota, 60°; Fort Verde, Arizona, 60°; Huron, Dakota, 60°. The smallest are: Cedar Keys, Florida, 20°; Key West, Florida, 20°; Sanford, Florida, 20°; Pensacola, Florida, 21°; Fort Macon, North Carolina, 22°; Galveston, Texas, 22°; Portsmouth, North Carolina, 22°; New Orleans, Louisiana, 23°; Brownsville, Texas, 25°; Block Island, Rhode Island, 26°; Cape May, New Jersey, 26°; Indianola, Texas, 26°; Fort Smith, Arkansas, 27°; Point Judith, Rhode Island, 27°; Jacksonville, Florida, 27°; San Diego, California, 28°; Delaware Breakwater, Delaware, 29°; Mobile, Alabama, 29°; New River Inlet, North Carolina, 29°; Barnegat, New Jersey, 30°; Chincoteague, Virginia, 30°.

The greatest daily ranges of temperature have varied in the various districts as follows:

New England.—From 18° at Block Island, Rhode Island, on the 8th and 15th, to 31° at Eastport, Maine, on the 8th.

*Middle Atlantic states.*—From 16° at Cape May, New Jersey, on the 2d, to 32° at Williamsport, Pennsylvania, on the 14th.

*South Atlantic states.*—From 16° at Portsmouth, North Carolina, on the 17th and 18th, to 26° at Atlanta, Georgia, on the 1st.

*Florida peninsula.*—From 16° at Key West on the 22d, to 27° at Sanford on the 21st.

*Eastern Gulf.*—From 15° at Pensacola, Florida, on the 21st, to 27° at Mobile, Alabama, on the 22d.

*Western Gulf.*—From 14° at Galveston, Texas, on the 3d, to 34° at Fort Smith, Arkansas, on the 11th.

*Ohio valley and Tennessee.*—From 24° at Cincinnati, Ohio, on the 2d, to 32° at Louisville, Kentucky, on the 2d.

*Lower lakes.*—From 26° at Toledo, Ohio, on the 2d, to 37° at Oswego, New York, on the 2d.

*Upper lakes.*—From 22° at Chicago, Illinois, on the 5th, to 34° at Marquette, Michigan, on the 8th.

*Extreme northwest.*—From 32° at Bismarck, Dakota, on the 13th and 14th, to 43° at Fort Buford, Dakota, on the 30th.

*Upper Mississippi valley.*—From 24° at Cairo, Illinois, on the 21st, to 32° at Saint Paul, Minnesota, on the 1st.

*Missouri valley.*—From 27° at Omaha, Nebraska, on the 15th, to 40° at Fort Bennett, Dakota, on the 13th.

*Northern slope.*—From 31° at North Platte, Nebraska, on the 14th, to 43° at Fort Shaw, Montana, on the 25th and 26th; 43° at Billings, Montana, on the 24th; and 43° at Fort Washakie, Wyoming, on the 4th.

*Middle slope.*—From 22° on the summit of Pike's Peak, Colorado, on the 4th, to 40° at West Las Animas, Colorado, on the 26th.

*Southern slope.*—From 33° at Fort Concho, Texas, on the 11th, to 34° at Coleman City, on the 8th and 18th.

*Southern plateau.*—From 33° at Fort Grant, Arizona, on the 14th, to 54° at Fort Apache, Arizona, on the 18th.

*Middle plateau.*—From 35° at Pioche, Nevada, on the 9th, and at Salt Lake City, Utah, on the 26th, to 39° at Winnemucca, Nevada, on the 10th.

*Northern plateau.*—From 39° at Fort Missoula, Montana, on the 13th, to 40° at Lewiston, Idaho, on the 24th, and at Spokane Falls, Washington Territory, on the 38th.

*North Pacific.*—From 33° at Portland, Oregon, on the 18th, to 36° at Roseburg, Oregon, on the 18th.

*Middle Pacific.*—From 27° at Cape Mendicino, California, on the 9th, to 36° at Sacramento, California, on the 28th and 29th.

*South Pacific.*—From 27° at San Diego, California on the 4th, to 44° at Los Angeles, California, on the 25th.

#### FROSTS.

Frosts occurred in the various states and territories, as follows:

*Colorado.*—Denver, 13th; on the summit of Pikes Peak, 1st, 7th, 8th, 9th.

*Dakota.*—Bismarck 2d; Fort Buford, 2d; Tobacco Garden, 2d.

*Illinois.*—Chicago, 14th.

*Indiana.*—Lafayette, 14th; Logansport, 14th, 15th.

*Iowa.*—Dubuque, 14th.

*Massachusetts.*—Westborough, 4th.

*Michigan.*—Alpena, 1st; East Tawas, 1st; Grand Haven, 1st, 14th; Ione, 1st; Kalamazoo, 1st; Lausling, 13th; Litchfield, 2d; Port Huron, 14th; Swartz Creek, 1st.

*Minnesota.*—Moorhead.—23d; Saint Vincent, 23d.

*Montana.*—Fort Ellis, 12th; Fort Assinniboine, 1st; New Chicago, 12th.

*Nevada.*—Carson City, 15th.

*New Hampshire.*—On the summit of Mount Washington, 1st, 2d, 3d, 14th, 15th, 24th, 26th, 30th.

*New Mexico.*—Santa Fé, 9th.

*New York.*—Albany, 1st: Frost this morning on the lowlands in this vicinity caused considerable damage to plants. Factoryville, 2d; Kiantone, 22d.

*Ohio.*—College Hill, 1st; Ruggles, 1st; Toledo, 1st; Wauseon, 1st, 14th.

*Pennsylvania.*—Blooming Grove, 2d; Dyberry, 2d, Wellsboro', 1st, 2d.

*Vermont.*—Woodstock, 2d.

*Virginia.*—Marion, 1st.

*Wyoming.*—Cheyenne, 9th, 13th; Fort Washakie, 1st, 3d, 4th.

#### ICE.

The following instances of ice formation have been reported: Swartz creek, Michigan, 13th; Tobacco Garden, Dakota, 2d, one-fourth inch in thickness.

#### PRECIPITATION.

[Expressed in inches.]

The distribution of rainfall over the United States and Canada, for the month of June, 1883, as determined from reports from more than six hundred stations, is exhibited on chart iv.

The general distribution of rainfall during the month of June, and the districts of maximum departures from the June normal of each year since 1874, are as follows:

Districts.	Maximum departures.	Year.	Remarks.
Minnesota.....	+ 4.50	1874...	{ Deficient in the Ohio and Missouri valleys, middle and south Atlantic states, and lower lake region; excessive in the Saint Lawrence valley, New England, Gulf states, upper Mississippi valley, upper lake region, Minnesota, and on the Pacific coast.
East Gulf.....	+ 1.15		
Ohio valley.....	- 1.00		
Missouri valley.....	+ 5.03	1875...	{ Deficient in the Saint Lawrence valley, upper lakes, middle Atlantic and Gulf states; excessive in New England, lower lakes, Ohio, upper Mississippi, and Missouri valleys, and on the Pacific coast. At Omaha, Nebraska, 5.02 inches fell in eight hours on the 17th.
Upper Mississippi valley.....	+ 2.25		
East Gulf.....	- 3.20		
West Gulf.....	- 1.65	1876...	{ Excessive on the Pacific coast, in all districts east of the Mississippi river except in the lower lake region and in New England; deficient in Minnesota, Missouri valley, and west Gulf states.
South Atlantic states.....	+ 4.80		
Upper lakes.....	+ 1.35		
Minnesota.....	- 1.95	1877...	{ Small deficiencies in the Gulf states, Saint Lawrence valley, and in California; above the average in all other districts, the excesses being very large from the Missouri valley to the Atlantic coast.
Upper Missouri valley.....	- 1.50		
New England.....	- 1.70		
Tennessee.....	+ 5.00	1878...	{ Excessive along the Atlantic and Gulf, in the upper Missouri valley, and upper lake region; deficient on the Pacific coast, in the lower lake region, Tennessee, lower Missouri, upper Mississippi, and Ohio valleys; normal in Minnesota.
South Atlantic states.....	+ 4.90		
Missouri valley.....	+ 3.30		
Saint Lawrence valley.....	- 0.30	1879...	{ Excessive in the Missouri valley, lower lake region, New England, and Saint Lawrence valley; deficient in all other districts, except slightly above the average in the middle Atlantic states.
West Gulf.....	+ 2.14		
East Gulf.....	+ 1.52		
Portland, Oregon.....	- 2.14	1880...	{ Excessive in Minnesota, lake region, Ohio valley, west Gulf states, and north Pacific coast region; deficient in the east Gulf states, along the Atlantic coast, in the Missouri valley, and in California; normal in the upper Mississippi valley.
Tennessee.....	- 2.79		
South Atlantic states.....	- 1.68		
East Gulf.....	- 1.58	1881...	{ Deficient in the Southern states, lower Missouri valley, Minnesota, and upper lake region; excessive in the upper Missouri and upper Mississippi valleys, lower lake region, New England, middle Atlantic states, northern and middle Pacific coast regions; normal in the Ohio valley and southern California.
Saint Lawrence valley.....	+ 2.26		
New England.....	+ 1.48		
Lower Missouri valley.....	+ 1.30	1882...	{ Deficient in Tennessee, in all the states bordering on the Atlantic ocean and Gulf of Mexico, except Florida; also deficient in the middle and south Pacific coast regions; excessive over the interior districts and Florida.
Lower Missouri valley.....	- 3.02		
South Atlantic states.....	- 2.78		
New England.....	- 2.01	1883...	
Minnesota.....	+ 2.40		
West Gulf.....	+ 1.52		
Upper lakes.....	+ 1.49	1884...	
West Gulf.....	- 3.06		
South Atlantic states.....	- 2.40		
New England.....	+ 1.76	1885...	
Middle Atlantic states.....	+ 1.43		
East Gulf.....	+ 1.40		
West Gulf.....	- 1.90	1886...	
East Gulf.....	- 1.53		
Middle Atlantic states.....	- 1.01		
Upper Mississippi valley.....	+ 1.90	1887...	
Upper lake region.....	+ 1.39		
Missouri valley.....	+ 1.35		

In New England, Florida, the Ohio valley, Tennessee, extreme northwest, southern slope, and west of the Rocky mountains, the rainfall is below the June average. The most marked deficiencies occur in the extreme northwest, southern slope, and north Pacific coast region, where they are 1.60, 1.56, and 1.46, respectively. In the middle and south Atlantic states, Gulf states, lake region, upper Mississippi valley, northern and middle slopes, the rainfall is above the average. Large excesses are reported from the Missouri valley, and middle and south Atlantic states. The heaviest precipitation of the month occurred in the Missouri valley. At Omaha, the monthly rain-